

TECHNICAL NOTES

U S Department of Agriculture

Natural Resources Conservation Service

TN - PLANT MATERIALS - 45

June 1997

FIELD PLANTING SUMMARY - 'MARANA' FOUR-WING SALTBUCK

Attached is a brief summary of field planting results of 'Marana' Four-wing Saltbush from 1974 to 1985. This was compiled from annual evaluation data from field plantings in over 30 field offices. It is readily apparent that a shrub like 'Marana' can be established under California conditions, but adequate environmental and cultural techniques are needed to assure success. This information can be used in conjunction with evaluation results complied earlier in the cooperative work with the California Department of Fish and Game.

This Technical Note was originally issued as TN - Plant Materials - 34 in January 1986. It was displaced in March 1994 when TN - Plant Materials - 32 titled "PLS - What is It and How Can We Use It" was reissued as TN - Plant Materials - 34.

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Field Planting Summary for
MARANA Fourwing Saltbush
1974-1985

Introduction

'Marana' fourwing saltbush, *Atriplex canescens* is a native, evergreen, erect shrub. It was originally collected from native plants near El Cajon, San Diego County in November 1961. 'Marana' is one of three upland game shrubs released in 1979 and tested cooperatively with the California Department of Fish and Game. It has been used and tested on critical erosion areas, for upland game cover and for environmental enhancement.

Performance

'Marana' fourwing saltbush has been planted in 54 field plantings in California since 1974 (see Appendix 1). Plantings were made in the following MLRAs:

<u>MLRA</u>	<u>Number</u>	<u>Success</u>	<u>Failure</u>
14	4	2	2
15	12	3	9
17	18	7	11
18	6	3	3
19	2	2	0
20	1	0	1
21	10	7	3
30	1	1	0
Totals	54	25	29

Results were about 46% successful. About 1/3 of the failures were due to the drought years which caused most new plants to fail. The remainder of the failures were primarily caused by improper establishment techniques. Plants were readily grazed by grasshoppers, rodents and domestic livestock. Adequate initial protection is essential for optimum establishment, especially with seeding. Only three field plantings failed due to soils.

Seeding of 'Marana' was very successful, but adequate moisture, low weed competition and proper seeding methods were essential. Later seeding dates after March 1, were most successful, but moisture was a critical factor.

'Marana' grew best on well-drained soils from sandy to clay loams that are slightly acid to strongly alkaline. It failed on the Redding, Rincon, and Bieber/Tournquist soils. With proper care and handling, 'Marana' can be planted from bareroot stock with success.

Conclusions

'Marana' fourwing saltbush is the best native strain of this species for use in California. It does best at elevations up to 4,000 feet and where annual precipitation averages at least 10 inches. This strain has been successfully seeded and planted from bareroot and container plants. 'Marana' prefers well-drained soils and does not like "wet feet." It is adapted to MLRAs 14, 15, 16, 17, 18, 19, 20, 30, and the warmer parts of 21. The major uses of 'Marana' have been for upland game habitat, erosion control and environmental enhancement.

**Summary of Performance - Dates - 90 - HABANA - Encycwing - Saltbrush
1974-1985**

CA-45-4

No.	Landowner	MLRA	E.O.-	Soils	Rainfall	Performance
1976-74	Hunter Liggett	15	King City	Sheridan	20	Several plants surviving, heavy grazing. No survival of plants.
1980-75	A. Foad	17	Placerville	Redding	16	Poor survival from cuttings.
1982-75	D. Siias	17	Sacramento	Redding	16	Poor survival. Too wet.
1983-75	B. Butler	17	Woodland	Rincon	16	Drought. Poor mgmt. Failure.
1985-75	W. Chew	15	Morgan Hill	Los Gatos,	30	
1988-75	Ballico RCD	Werced	Maymen	Haymen	12	Direct seeded, fair to good stand. Flooded. Plants washed out. Good survival and growth.
2026-75	P. Schiffano	17	Patterson	Dinuba	10	Some irrig.
2045-76	CAL Clark	17	Hanford	Traver-	8	Good stand and growth from seed.
2046-76	Hidden Valley	19	Riverside	Kimberlina (FSC)	12	Did not survive drought. Few plants survived heavy grazing.
2053-76	City of Cupertino	14	Morgan Hill	Grangeville	18	Good survival and growth.
2059-76	J. Beck	21	Yreka	Arlington	16	Fair to good survival and growth.
2062-76	C. Mort	21	Yreka	Garretson	16	Good survival from bareroot.
2065-76	J. Thompson	21	Yreka	Salisbury (CL)	14	Fair stand from seed, some irrigation.
2066-76	K. Whipple	21	Yreka	Dayville (L)	20	Drought. No plants survived.
2067-76	M. Blassingame	18	Fresno	Unknown	18	Drought, no survival. Planted in July. No survival.
2068-76	W. Chew	15	Morgan Hill	Los Gatos, Maymen	30	Good growth from seed.
2119-76	Monterey Reg. Park	14	Salinas	Junipero-Sur	16	Irrigated. Due to drought and poor care.
2124-76	Lemore Sportsman	17	Hanford	Nord (FSC)	8	No survival from seeding.
2125-76	CAL Clark	17	Hanford	Traver-	8	Poor survival on these soils.
2129-76	J. Fell	15	Morgan Hill	Kimberlina	20	Failure, not adapted to soils.
2131-76	Code Fisheries	18	Auburn	Gaviota/ Los Gatos	16	Failure. Due to drought and poor care.
2153-77	SMUD	17	Sacramento	San Joaquin	18	No survival from seeding.
2159-77	D. Routh	21	Loyton	Redding (L)	16	Heavily grazed. Failure.
2194-78	J. Peters Babcock	18	Mariposa	Bieber,	16	Fair survival. Poor mgt.
2198-78	C. Faure	17	Visalia	Tourquist	30	Drought. No survival.
2200-78	J. MacDonnell	21	Alturas	Auberry (SL)	10	Heavily grazed. Failure.
2203-73	D. Routh	21	Loyton	San Joaquin (L)	12	Fair survival. Poor mgt.
2212-78	U.S.F.W.S.	17	Fall River	Barnyard (L)	16	Fair establishment, then grazed out.
2223-78	Colusa NWR	17	Mills	Lakeview (CL)	16	No survival. Heavy competition.
2238-79	R. Noel	20	Corning	Siebel	18	Good survival of plants.
2250-73	CAL Clark	17	Colusa	Willows-	16	Drought. No survival.
				Cabay (C)	22	Fair survival. Dryland,
				Santa Lucia (CL)	8	weed control.
				Kimberlina- Garces (FSL)		

MLBA	Landowner	Ea. # -	Soils	Rainfall		Performance
				MLBA	Ea. # -	
2257-78	M. Blessingame	18	Fresno	Tivvy (L)	18	Fair to good stand. Some irrigation.
2262-79	J. Woodward	15	Gilroy	Gaviota/ Los Gatos (L)	20	Failure. Severe grazing.
2281-79	G. Winje	21	Yreka	Lassen, Montague	12	Poor survival. Poor mgt.
2293-79	J. Fell	15	San Jose	Los Gatos/ Gaviota (GRL)	20	Drought. Failure due to mgt.
2290-79	Loyalton	21	Loyalton	James Canyon (SIL)	12	Good survival and growth. City rebuilt road.
2291-79	Honolulu Ranch	17	Yuba City	Pleasanton	15	No survival. Poor mgt.
2317-79	H. Morgan	15	Concord	Dibble (SICL)	17	Failure. No weed control.
2327-79	Corps of Engineers	18	Madera	Ahwahnee (SL)	12	No survival.
2336-79	E. Rubino	17	Santa Maria	Riverwash	16	Flooded out.
2341-79	C. Kettleman	17	Sacramento	San Joaquin (SL)	18	No survival.
2393-90	Santa Barbara Co.	19	Santa Barbara	Gaviota	18	Fair survival of plants.
2397-90	J. O'Connell	15	Corning	Zamora (CL)	22	Poor survival.
2412-81	Winema Lodge	21	Tulelake	Eastable (L)	12	Poor initial stand.
2454-81	Camanche Hills	17	Jackson	Unknown	20	No survival.
2472-82	USDI - Cibola	30	Blythe	Unknown	3	Some plants survived wildfire. Some plants, but cattle grazed heavily.
2570-83	CDFG	14	Paso Robles	Metz-Tujunga Sorrento	7	Fair survival from seed and plants.
2571-83	B. Bergquist	14	Paso Robles	Arbuckle- Positas	5	Fair survival from plants.
2624-84	USFS	18	Visalia	Shaver (SL)	22	Fair initial survival of plants.
2625-84	E. Stewart	15	Corning	Tollhouse Mayers (C)	24	Grasshoppers destroyed all plants.
2626-84	M. Lower	15	Los Banos	Orogenen Quiensabe (CL)	8	Plants destroyed by rodents and livestock.
2657-84	B. Roden	15	Bakersfield	Polonio (LL)	6	Seeding was failure.
2658-84	3. Roden	15	Bakersfield	Polonio (LL)	6	Poor to fair stand with plants.
2701-85	Westlands Water Dist.	17	Fresno	Panoche (CCL)	6	Just planted.